

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
7 October 2004 (07.10.2004)

PCT

(10) International Publication Number
WO 2004/085571 A1

- (51) International Patent Classification⁷: **C09K 11/77, H01S 3/00**
- (21) International Application Number: **PCT/CA2004/000447**
- (22) International Filing Date: **24 March 2004 (24.03.2004)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
60/457,226 **24 March 2003 (24.03.2003)** **US**
- (71) Applicant (for all designated States except US): **INNOVATION AND DEVELOPMENT CORPORATION [CA/CA]; University of Victoria, R Hut McKenzie Avenue, P.O. Box 3075 Stn CSC, Victoria, British Columbia V8W 3W2 (CA).**
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **VAN VEGGEL, Franciscus, Cornelis, Jacobus, Maria [NL/CA]; 551 Old West Saanich Road, Victoria, British Columbia V8X 3X3 (CA). STOUWDAM, Jan Willem [NL/CA]; 551 Old West Saanich Road, Victoria, British Columbia V8X 3X3 (CA).**
- (74) Agents: **COOPER, Michael, D. et al.; Barrigar Intellectual Property Law, Suite 290, 1675 Douglas Street, Victoria, British Columbia V8W 2G5 (CA).**
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): **AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.**
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): **ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).**
- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: **LANTHANIDE-DOPED NANOPARTICLES, THEIR SYNTHESIS AND USES THEREOF**

(57) Abstract: A photonic material comprising a core and an envelope is provided for use in telecommunications, diagnostics, imaging and other applications. In its simplest form, the core comprises at least one nanoparticle. The nanoparticle comprises an inorganic material and at least one luminescent ion, wherein the inorganic material is suitably selected to bind the luminescent ion. The envelope comprising a suitably selected organic stabilizing layer overlying said core. The core and envelope may have a shell located between them.

WO 2004/085571 A1